

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 62203528  
PUBLICATION DATE : 08-09-87

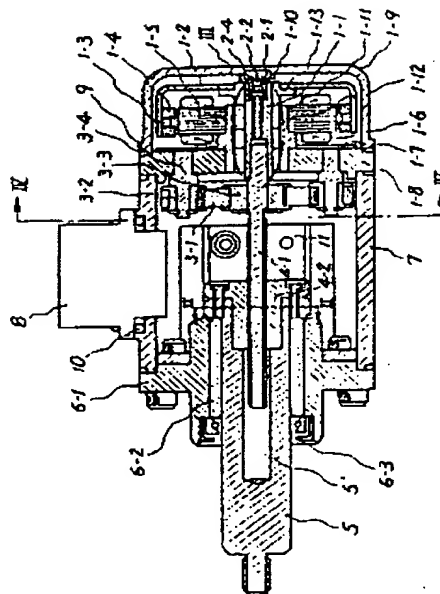
APPLICATION DATE : 28-02-86  
APPLICATION NUMBER : 61043686

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INT.CL. : H02K 7/06 F16H 25/24

TITLE : STEP MOTOR ACTUATOR



**ABSTRACT :** **PURPOSE:** To reduce the weight, thickness, length and size, to eliminate the maintenance, to enhance the accuracy and to decrease the cost of a stepper motor actuator by providing a thrust gas correcting mechanism and a radial fluctuation correcting mechanism to absorb the fluctuation.

**CONSTITUTION:** A ball thread shaft 4-1 is fitted to the left end of a rotor shaft 1-1, and a plunger 5 is coupled with a ball thread nut 4-2. The size is reduced by this structure. A steel ball 2-2 is provided through a spring seat 2-4 at the right end of the shaft 1-1, and the ball 2-2 is point-contacted with the flat surface of a thrust retainer 1-10. Thus, a frictional coefficient is suppressed to small value, and the axial vibration is absorbed by a spring washer. A large bush 3-3 is fitted to a ball thread shaft 4-1, and a small bush 3-2 is buried in a motor base 1-8. The large and small bushes are coupled therebetween by a spiral spring. Since the rotary torque of the thread shaft is balanced with the tension of the spring to be always constant, the fluctuation can be absorbed.

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